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ABSTRACT

The 4 reports contained in this document present the results of a pilot study of differential coping behavior among siblings. The IRGOP researchers proposed to investigate the factors related to why some children achieve well in school and thereby take the first step in moving out of poverty. Four areas of concern -- human development, sociology, education, and home economics -- are combined in this interdisciplinary approach to study teenagers' school coping behavior. The reports address themselves to data gleaned from the pilot study in which 196 single-parented teenagers from Tompkins County, New York, were interviewed. The paper by Nellie Brodis explores child-rearing practices which may cause dissimilar school achievement among welfare and non-welfare children. Michael Rogoff's paper describes in detail the measurement of academic achievement used for this IRGOP study. Rose Anne Negele attempts to identify the kinds of maternal behavior and aspirations which are essential for high academic performance in fatherless adolescent girls. The final paper, by Philip Lewin, discusses the importance of teenagers' housing satisfaction and school success. (DK)

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IRGOP REPORTS

INTERDISCIPLINARY RESEARCH GROUP ON POVERTY

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TABLE OF CONTENTS

1. Parent-Child Relationships as Related to Differential Academic Achievement of Adolescent Siblings in Father Absent Families, by Nellie T. Brodis. 8

2. The Residual Gain Process: IRGOP Measurement of Academic Achievement, by Michael A. Rogoff. 19

3. Perceptions of Maternal Behavior and Ideals Related to Academic Achievement in Fatherless Adolescent Girls, by Rose Anne Negele. 27

4. Housing Satisfaction, Self-Concept, and Teenage School Achievement, by Philip Lewin. 38

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The journey of a thousand miles
begins with just one step

Lao-Tsze

INTRODUCTION

During debates over the causes of school achievement among students a group of staff, faculty and students from the school of Human Ecology under the direction of Dr. Harold Feldman met three years ago to begin major research into this vital area. Most studies carried on over a period of time lose relevance, but IRGOP (Interdisciplinary Research Group on Poverty) research, if anything, has grown more relevant. With welfare roles at an unprecendented high and unemployment rates growing, the need for greater educational skills becomes more and more apparent. Few topics can evoke more interest today among both laymen and specialists than that of school achievement. What could be more important to parents, educators, and other professionals than to find ways to stimulate academic interest and achievement, particularly among those children locked in poverty.

Taking a fresh look at an old problem, these researchers proposed to investigate the factors related to why some children achieve well in school and thereby take the first step in moving out of poverty. The truly innovative aspect of this study was that the investigators chose not only to compare children within the same general social situation, but within the same family as well. By using siblings the researchers could isolate the factors directly related to "coping behavior" without having such behavior clouded by varying environmental factors. And so the research project entitled "Differential Coping Behavior Among Siblings" came into being.

There is no lack of evidence in the literature that the majority of

students who succeed come from homes which may be described as advantaged, while the majority of students who experience failure come from disadvantaged homes. It is also apparent from the studies, however, that this directly proportionate relationship between home background and school success is not invariably true. In many instances children from disadvantaged homes succeed in their educational environments, yet to date very little effort has been made to focus on this phenomenon. Obviously, a great deal of important information could be gained from an analysis of those students who deviate from the expected relationship between advantaged background and school success. A great contribution to education could be made by studying successful students from disadvantged families, those whom IRGOP calls the "copers". By using the expertise and experience of faculty from four different areas of concern -- human development, sociology, education, and home economics -- IRGOP instituted an interdisciplinary approach to study teenagers' school coping behavior.

Such interdisciplinary research makes no assumptions about a single causal variable, but rather investigates a variety of environmental and psychological factors that may affect a youngster's academic performance. The researchers were careful not to lump persons into convenient categories. Simply because children have fathers who do the same kind of work, or mothers who spent the same number of years in school, or that they are black or on welfare, does not mean that they are treated the same at home or elsewhere. It is the potential variances with which these children meet and perceive their environments which concern the researchers..

In addition to the advantages of working on a comprehensive approach to a timely problem, this project has given many graduate and undergraduate students a chance to participate in continuing research from its inception; a chance to

work with faculty and staff in tackling a major investigation. It seems appropriate that a study so intent on discovering the processes of educational motivation should simultaneously encourage its researchers' academic growth. Several factors nurtured that growth. Because students were encouraged to express their opinions concerning the direction of the research, their intellectual development was paralleled by their increased self-esteem and confidence. At weekly meetings the researchers gather to exchange their ideas and to stimulate creative thinking. Indeed, from these meetings the direction of the pilot study emerged, and from that study several doctoral dissertations and master theses have already been completed.

The student papers in this first edition of IRGOP REPORTS[1] address themselves to data gleaned from the teenage pilot study which included 196 single-parented teenagers from Tompkins County within the Ithaca school district. Eighty-six of these teenagers were in welfare families, and 110 were not. The problems inherent in compiling a list with single parent, welfare, non-welfare families with two or more teenagers were overcome by the enthusiastic help of the Ithaca school system and the Department of Social Services. The total universe of such families within the Ithaca school district were used. The interviews were done with precoded schedules that took one and one-half hours to complete. All respondents were paid. Much time was taken in training the interviewers for the difficult task of interviewing youngsters.

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[1]The work presented or reported herein was performed pursuant to a grant from the United States Office of Education, Department of Health, Education, and Welfare. However, the opinions expressed herein do not necessarily reflect the position or policy of the U.S. Office of Education, and no official endorsement by the U.S. Office of Education should be inferred. Grant # OEG-0-9-420444-3717 (010).

Because the mothers of these same teenagers were also being interviewed for another pilot study, some demographic information was gathered about these teenagers. Generally, the welfare children come from families with 5.3 children, in contrast with the non-welfare children who come from families with 3.4 children. The average age of welfare mothers is 41.6 years compared with 44.3 years for non-welfare mothers. Income and education indicated that the two groups are quite distinct. The average income for those on welfare was $2,820; for non-welfare, $5,870. Welfare mothers averaged a ninth grade education compared to fifteen years of schooling for non-welfare mothers. The welfare mothers were generally less interested in politics and religious and school organizations than the non-welfare mothers.

In an interesting paper "An Attempt to Characterize Working Welfare Mothers",[2] Mrs. Judy Stewart refers to the teenage pilot study. She notes that in contrasting siblings compared according to success type, she found that academic success appeared to increase with per-capita income. Although this table

Academic Achievement of Teenage Siblings from Families with Different Per-Capita Incomes.

Annual Per-Capita Income	Success Type UU	AU	AA	TOTAL
Under $1000 (n=37)	43.2%	27.0%	29.7%	99.9%
$1001-$2000 (n=36)	19.4%	47.2%	33.3%	99.9%
$2001-$3000 (n=18)	16.7%	38.9%	44.4%	100.0%

UU means that both teenagers were underachieving; AU means one teen was achieving, the other underachieving; AA means that both were achieving.

[2]Mrs. Stewart is a research associate currently working in IRGOP Research

confirms the common assumption that the lower the income group the greater the likelihood of academic failure, Mrs. Stewart suggests that it might be important to investigate further the distribution of the successful students. It is interesting that thirty per-cent of those in the annual per-capita income group of one thousand dollars or under still are achieving. Are the successful teenagers from very low income homes subjected to high or low achievement pressure? It is clear that there is much yet to be learned about teenagers from the low income group and academic achievement.

The papers included in this edition reflect some of the typical aspects of IRGOP explorations. Because of the exploratory nature of a pilot study most findings in the following papers have been of critical importance to further developments in the overall study. They also have some practical suggestions for educators. All of the papers in this edition deal with differential school achievement among students.

The introductory paper to IRGOP REPORTS was written by Mrs. Nellie Brodis. Mrs. Brodis began her research and did her sampling in Detroit, Michigan. She completed her doctoral dissertation at Cornell while involved

in IRGOP Research. Using some of the same scales that were later employed in the IRGOP study, Mrs. Brodis explores child-rearing practies that may cause dissimilar school achievement among welfare and non-welfare children.

Mr. Michael Rogoff's paper describes in detail the measurement of academic achievement used for this IRGOP study. It took much hard thinking to develop a measure that was indicative of a student's achievement relative to his potential. Students who were barely passing courses yet who were still working up to their measured potential were considered copers, whereas students who were doing well but not working up to their potential were considered non-copers. The pilot study indicates that the procedure used to measure academic success is a good one. Needless to say Mr. Rogoff's paper explains one of the key variables of the study and can be used as a reference for the other papers.

The remaining two papers develop other aspects of the IRGOP research. Mrs. Rose Anne Negele notes that despite the preoccupation with achieving in contemporary American society, very little attention has been paid by reseachers to this phenomenon in the female. In a nation that places such a high value on productivity, it is ironical that there is such a lack of information regarding women. Mrs. Negele makes use of some of the theories that suggest that adolescent years may be crucial for a girl's ultimate achievement behavior. It is at this time that the female may make the unconscious decision either to continue her achievement strivings or to become oriented toward more traditionally restrictive feminine goals. The major concern of Mrs. Negele is to attempt an identification of the kinds of maternal behavior and aspirations that are essential for high academic performance in fatherless adolescent girls. Mrs. Negele suggests that maternal behavior and ideals have considerable influence on the academic achievement of the adolescent girl. Her findings suggest that ideals of a warmly democratic nature are generally conducive to academic achievement in

adolescent girls. Specifically, expectations for independence of adult authority and intellectual curiosity may facilitate academic achievement, whereas maternal punishment, control and achievement pressure, and mother-daughter conflict probably impede achievement. Threatening and negative interactions between mother and daughter may result in strong feelings of inferiority which discourage the daughter from even attempting challenges that confront her. Mrs. Negele feels that more could be understood from a comparison between single parent and intact families. She questions the assumption that father absence has a greater effect on boys than upon girls. She also notes evidence from other research indicating that the father-daughter relationship may be predictive of academic performance.

The last paper, written by Mr. Philip Lewin, discusses the importance of teenagers' housing satisfaction and school success. The data strongly suggests that housing satisfaction as a part of the youngsters' self-concept is highly related to academic achievement. Mr. Lewin attempts to integrate three usually disparate areas of investigation: learning, housing and self-concept. From there he discusses the importance of accounting for teenagers' perceptions about housing needs rather than relying solely upon design experts. Mr. Lewin further substantiates the contention that expressiveness is an important part of self-concept. In order to perform well, students should be encouraged to express themselves emotionally and intellectually. Mr. Lewin speaking not only as a researcher but as a teacher, counsellor and administrator in the Ithaca school system notes that the atmosphere both at home and at school should be structured to encourage expressiveness.

It should be noted once again that these papers only reflect some of the

findings from the pilot study. At present the major study, using samples in three different sections of the country--Syracuse, rurban upstate New York, and West Virginia--covering 900 teenagers in single parent and intact families is underway.

A special expression of gratitude is extended to Mrs. Ethel Vatter, Associate Dean of Graduate Education and Research and IRGOP member, who helped in editing the papers for IRGOP REPORTS.

Debra Kaufman
March, 1970

PARENT-CHILD RELATIONSHIP AS RELATED TO DIFFERENTIAL ACADEMIC ACHIEVEMENT OF ADOLESCENT SIBLINGS IN FATHER ABSENT FAMILIES[1]

The poor today are usually members of some ill-favored population group such as the poorly educated, the aged, the young school drop-outs and the single-parent, female-head-of-the household family. When the head of the family is a woman, the probability of the family being poor and staying poor increases greatly. According to Bell (1967)[2] each year more children are being reared by mothers alone and these children "are almost four times more likely to be poor than those who live with two parents." This suggests that to overcome obstacles and move out of poverty, greater effort must be expanded by poor children from fatherless homes than by their peers in two parent families.

Some of the particular problems facing children from poverty are that the interpersonal relationships of the poor, more frequently governed by expediency rather than moral or value justification, prevent patterning or predictability of behavior. According to Bronfenbrenner, Riesman (1964), Chilman (1965)[3] economic differences in the application of pressure for high achievement and in the emotional relationships between parents and children are explained by the differing disciplinary techniques each class uses. Mothers in an environment of poverty develop attitudes and use child-rearing practices that are not only different from non-poor mothers but act in some cases actually to prevent movement out of poverty.

This paper addresses itself to the investigation of the parent-child relationships as they relate to the academic achievement of children in low-

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[1]Thesis presented to the Faculty of the Graduate School of Cornell University for the Degree of Doctor of Philosophy, June 1969 by Nellie Brodis. All material herein has been excerpted from this.

[2]Bell, Winifred, "Cheek by Jowl , Anachronism and Invention in the Social Services," University of Maryland, 1967, Mimeo.

[3]Chilman, Catherine, "Child-Rearing and Family Relationship Patterns of the Very Poor," Welfare in Review, 1965.

income single parent families. Although the author was interested in self-concept items as well, only the child-rearing practices as reported by the teenagers will be focused on in this paper.

Procedures

The sample of 149[4] (mother-headed families each with two adolescents), was stratified according to economic status (welfare or non-welfare)[5] and achievement category of the siblings (both achieving, both underachieving, one achieving, one underachieving), with achievement based on residual gain scores[6] derived from an analysis of the regression of standardized achievement test scores on I.Q.

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4. Editor's Note: The sample and sampling procedures used by Mrs. Brodis were not the same as used by IRGOP investigators. Mrs. Brodis's complete sample was taken in Detroit, Michigan. For details see Brodis thesis pp.24-26.

5. Editor's Note: It should be noted that the differences between the two economic status groups is not as differentiated for the Brodis' sample as it was for the IRGOP sample. The following is a table from the Brodis thesis (p.50) that differentiates her welfare and non-welfare families.

Table 4. Mother's Demographic Data According to Current Economic Status of the Family

	Welfare	Non-Welfare
Number of families	89	60
Average years on welfare	8.20	5.32
Average years off welfare	0.40	2.06
Average yearly income	$3,187	$4,367
Average per-capita income	$455	$873
Percent of homeowners	10	32
Average age category of mothers	31-40	31-40
Average no. grades completed by mother	9.56	10.09
Average no. children	6	4

For differences between welfare and non-welfare in IRGOP research see the introduction to IRGOP REPROTS.

6. Editor's Note: For Mrs. Brodis, residual gain refers to the extent to which a child's achieved level of learning (as taken from achievement tests) was related to this ability as predicted by his I.Q. In the IRGOP study grade point average was used instead of achievement tests to obtain achieved level of learning. It was impossible for Mrs. Brodis to use grade point average, for her sample population ranged over many school systems and thereby precluded a consistent grading system. The Tompkins County data used by IRGOP includes only one school system.

Although it was clear that the non-welfare families were better off economically than the welfare, it was obvious that a large proportion of them would still be classified as poor. The welfare families contributed a disproportionate number of underachieving children to the sample while the non-welfare families contributed a higher proportion of achievers. The 149 sample families were categorized as welfare or non-welfare according to whether or not they were receiving any public assistance (except medicaid and social security) at the time of the study. Of the 298 children there were 140 boys and 159 girls.

Data to test the child-rearing hypotheses were collected by use of the Short-Form Bronfenbrenner Cornell Parent Description instrument which is in the form of rating scales. The children were instructed to answer in terms of how often the parent behaved in the manner described. The response scale used in this form reads as follows: never, hardly ever, sometimes, fairly often, very often, and was scored from one to five respectively.

I. Support
   1. She makes me feel she is there if I need her.
   2. If I have some kind of problem, I can count on her to help me out.
   3. She says nice things about me.
   4. She teaches me things I want to learn.

II. Control
   5. She keeps after me to do well in school.
   6. She keeps pushing me to do my best in whatever I do.
   7. If I don't do what is expected of me, she is very strict about it.
   8. She expects me to keep my things in good order.

III. Punishment.
   9. She slaps me.
   10. She spanks me.
   11. She nags at me.
   12. She punishes me by not allowing me to be with my friends.

To test the hypotheses regarding achievement level of the individual children, an analysis of variance using the above scale scores was performed with a 2x2x2 factorial design using the two achievement groups, two sexes, and two economic groups. This analysis was performed for each of the scales; when

significant differences were found, the means of the four items indexing that scale were examined to explicate the source of the variation.

The hypotheses to be tested were:

Hypothesis 1: There will be significant differences between achievers and underachievers on child-rearing scales.

Hypothesis 2: There will be significant differences between boys and girls on child-rearing scales.

Hypothesis 3: There will be significant differences between the welfare and non-welfare children on child-rearing scales.

Hypothesis 4: There will be significant interaction between achievement status and sex on the child-rearing scales.

Hypothesis 5: There will be significant interaction between economic status and achievement on the child-rearing scales.[7]

Results

For all hypotheses there were no significant interaction effects for child's perception of parental punishment.

Hypothesis 1: There will be significant differences between achievers and underachievers on child-rearing scales.

Table 1. Means and F Value for the Significant Achievement Difference on the Child-Rearing Scale, Control

Scale	Achievers (N=132)	Under-achievers (N=166)*	F	P
Control	4.23	4.00	4.19	.05

*in all future tables the numbers under a group within brackets indicate the size of that group

Achieving children reported significantly more control than underachieving children. The largest difference between the two groups was found for the particular item, "If I don't do what is expected of me, she is very strict

7. Editor's Note: The third interaction hypothesis, sex by economic status, was not reported since the focus of this report is on achievement level.

about it." Virtually all the items indexing the control scales show that the achievers perceive more control than underachievers.

Hypothesis 2: There will be significant differences between boys and girls on child-rearing scales.

Tests of significance were performedfor the three scales according to the sex of the child. The support scale was the only scale to show significant sex differences.

Table 2. Means and F Value for the Significant Sex Difference on the Child- Rearing Scale, Support

Scales	Boys (140)	Girls (158)	F	P
Support	3.80	4.01	5.19	.05

There appear to be significant sex differences indicating that girls perceive more support from their mothers than do boys.

Table 3. Means of Items Indexing the Support Scales, as Reported by Boys and Girls

Items	Means: Boys	Means: Girls
She teaches me things I want to learn.	3.77	3.97
She makes me feel she is there if I need her.	3.81	4.11
She says nice things about me.	3.69	3.73
If I have some kind of problem, I can count on her to help me out.	3.91	4.22

All of the items were in the expected direction with the greatest differences appearing for the items "If I have some kind of problem I can count on her to help me out" and "She makes me feel she is there if I need her."

Hypothesis 3: There will be significant differences between welfare and non-welfare children in child-rearing scales.

Of all the comparisons only the support scale yielded significant F value. The children of welfare mothers reported significantly more support than the children of non-welfare mothers.

Table 4. Mean and F Value for the Economic Status Difference on the Child-Rearing Scale, Support

	Mean Response			
Scale	Welfare (178)	Non-Welfare (120)	F	P
Support	3.97	3.80	4.59	.01

The children of welfare mothers reported significantly more support than the children of non-welfare mothers.

Table 5. Means of Items Indexing the Support Scale as Reported by Children According to Economic Status

	Means	
Item	Welfare	Non-Welfare
She teaches me things I want to learn.	3.96	3.76
She makes me feel she is there if I need her.	3.74	3.68
She says nice things about me.	4.02	3.91
If I have some kind of problem, I can count on her to help me out.	4.19	3.91

The differences all go in the same direction. The greatest difference is on the item "If I have some kind of problem, I can count on her to help me out."

Hypothesis 4: There will be significant interaction between achievement status and sex on child-rearing scales.

Significant interaction effect was found only for the child's perception of parent control.

Table 6. Sex by Achievement

	Boys		Girls			
Scale	A	U	A	U	F	P
Control	4.16	3.95	4.13	4.14	5.12	.05

In order to clarify the source of the difference a test was made within each sex for the two achievement groups on the control scale. There were no significant differences for girls but there was a significant difference for boys. ($F = 8.84$; $P = .01$)

Hypothesis 5: There will be significant interaction between economic status and achievement on the child-rearing scales.

Table 7. Economic Status by Achievement

	Welfare		Non-Welfare	
Scale	A	U	A	U
Control	4.12	4.09	4.23	3.81

For control the differences in means for the two economic status groups were in the same direction for both achievers and underachievers. The two achieving groups had higher scores than did the underachievers. The most salient finding was the comparatively low level of control reported by the non-welfare underachievers.

Table 8. Economic Status by Achievement

	Welfare		Non-Welfare	
Scale	A	U	A	U
Support	3.88	4.02	3.93	3.60

The level of support was similar for welfare and non-welfare achievers. It is interesting to note however that for both control and support, the non-welfare underachievers appear to be the deviant group. They seem to be the ones receiving the least support and control.

Hypothesis 6: There will be significant interaction between sex, economic status and achievement level on child-rearing scales.

The following table shows that support and control according to sex by

achievement by economic status differed significantly at the .05 level.

Table 9:. Statistically Significant Mean and F Values of Child-Rearing Scales by Economic Status, Sex and Achievement as Reported by Children

	N	Mean Support	Mean Control
Boys			
Welfare Achievers	36	3.79	4.22
Welfare Underachievers	54	3.81	4.04
Non-Welfare Achievers	30	3.89	4.24
Non-Welfare Underachievers	20	3.48	3.49
Girls			
Welfare Achievers	28	3.97	4.01
Welfare Underachievers	60	4.22	4.21
Non-Welfare Achievers	38	3.96	4.13
Non-Welfare Underachievers	32	3.71	4.15

The low control and support found for non-welfare underachievers is better understood when looking at the sexes separately. Underachieving welfare boys reported much more control than did underachieving non-welfare boys. Girls from welfare families reported substantially more support than did those from non-welfare families.

Welfare and non-welfare underachieving boys differed on support and control; welfare underachievers reported more support and control than did the non-welfare underachievers. Welfare and non-welfare underachieving girls also differed similarly on support but they reported almost similar amounts of control.

Welfare and non-welfare achieving boys also differed in the amount of support and control received. Welfare achieving boys received less support than non-welfare achieving boys. Achieving welfare and non-welfare girls received about similar amounts of support, but non-welfare achieving girls received much more control than welfare achieving girls.

The items indexing the scales of support and control indicate that support and control influenced the achievement of boys and girls according to economic status.

Table 10. Means of Items Indexing the Support and Control Scales, as Reported by Children for Economic Status by Sex and Achievement

	Means							
	Welfare				Non-Welfare			
	Boys		Girls		Boys		Girls	
Item	A	U	A	U	A	U	A	U
Support Child's report								
She teaches me things I want to learn.	3.84	3.77	3.86	4.28	3.79	3.59	3.86	3.70
She makes me feel she is there if I need her.	3.66	3.81	4.09	4.42	4.06	3.65	4.03	3.76
She says nice things about me.	3.81	3.64	3.61	3.83	3.88	3.29	3.83	3.50
If I have some kind of problem, I can count on her to help me out	3.91	4.00	4.22	4.53	4.06	3.29	4.11	3.86
Control Child's report								
She keeps pushing me to do my best in whatever I do.	3.97	3.90	3.88	4.09	4.36	3.59	4.11	4.09
She keeps after me to do well in school.	4.50	4.33	4.26	4.51	4.36	4.53	4.30	4.50
She expects me to keep my things in good order.	4.53	4.57	4.63	4.72	4.54	4.06	4.75	4.65
If I don't do what's expected of me, she is very strict about it.	3.87	3.34	3.20	3.26	3.67	3.76	3.66	3.20

The item,"She says nice things about me", was reported less often by welfare achieving girls than non-welfare achieving girls, while welfare underachievers reported a larger mean than non-welfare underachievers. Welfare achievers reported larger means than non-welfare achievers on "If I have a problem, I can count on her to help me out." Interestingly though, on this item the welfare underachievers reported a larger mean than any of the other

achievement groups, while the non-welfare underachievers reported the smallest mean.

Discussion

Control practices as reported by children were associated with academic success. Regardless of economic status, achievers reported more control than did underachievers. At first glance this result seems to confirm the idea that children need to be kept under control. The old maxim comes to mind of "sparing the rod and spoiling the child." Whereas this may be true for the non-welfare achiever a closer look at the welfare boys implies that perhaps among welfare children less control might be more conducive for academic achievement. (Welfare achievers reported less control than non-welfare achievers and welfare underachievers reported more control than non-welfare underachievers.) Underachieving non-welfare boys receive the least amount of support and control. In these cases the boy may perceive this as a lack of caring or concern from the mother. There appears to be a sex factor involved here as well. The fact that achieving boys, regardless of economic status, were given more control than achieving girls suggests that perhaps adolescent boys function better with judicious use of control practices. In any case mothers appear to use different amounts of control and support depending on the sex of the child. This affirms the fact that mothers do not treat their children the same.

Achieving children report that support is a significant aspect of their mothers' behavior. The fact that welfare and non-welfare children differ significantly on this item invites some discussion. It is clear from this study that both achieving and underachieving welfare children feel they receive more support from their mothers than non-welfare children. It also appears that welfare children rely on their mothers to help them solve problems more often than their non-welfare counterparts.

Although, perhaps not a conscious reaction, it is possible that welfare mothers do in some way compensate for their existing poverty situation by offering more support to their children. The children, in turn, not knowing where else to turn for help and finding their environment perhaps more hostile turn to their mothers more often than non-welfare children for problem solving.

In that girls receive more support from their mothers than boys, it is possible to conjecture that mothers consider their daughters more vulnerable and more in need of support. Girls were significantly higher than boys on the two items, "Feel she (mother) is there if I need her" and "I can go to her with problems." It might be suggested that girls feel freer to go to their mothers because of sex identification. On the other hand, boys in single parent families may find it difficult to problem solve with adult figures from the opposite sex.

Implications

The degree and amount of the two specific child-rearing practices, support and control, were shown to be related to achievement. It is interesting to note that punishment appears to have no differentiating effect on achievement. Both boys and girls showed that too much or too little support was an impediment to achievement. Achievers report more control than underachievers. The optium level of support and control is a difficult assessment but one which obviously is geared to the individual child. It seems that welfare and non-welfare children respond differently to these specific child-rearing practices. Underachieving non-welfare boys receive the least amount of control and support whereas underachieving welfare boys receive more of each. Apparently any extreme, too much or too little, can be detrimental to academic achievement. It would seem that parents much show they care but not to the point that it becomes burdensome or pressureful to their children.

The Residual Gain Process: IRGOP Measurement of Academic Achievement

By Michael A. Rogoff

In the study, Differential Coping Behavior Among Siblings, one of the key variables is academic achievement. The term, achievement, is a puzzling one and for the purposes of this study, academic achievement-potential is perhaps a more accurate term. Academic success is not solely the function of grades nor of intelligence. Obviously, a child who has an I.Q. of 135, but also has low grade-point average, is not achieving in school. Conversely, a child with average intelligence who is receiving average grades is performing at a level where he would be expected to perform. Therefore, an accurate picture of academic achievement must take account of the interaction between actual school performance and potential for school performance. The "sibling" study attempts to achieve such an accurate picture, and the following pages detail the steps taken in the process.

Academic achievement may be thought of as the extent of a person's academic performance in relation to a person's academic potential. The academic performance of each person studied was measured by his grade-point average (GPA) in school. The grades for each school subject (with the exception of physical education) were stated in numerical fashion, and GPA was derived by obtaining the average of the grades for each subject. GPA ranged from 1 to 5, with an average of 2.56 and a standard deviation of .748. (An average is a score which tells you what is typical or central in a set of scores which a number of people have made. A standard deviation is a measure of dispersion which tells one how a set of scores are scattered or dispersed around the central score. The larger the measure of dispersion the more scattered the scores.)

A high numerical score in this system indicates poor performance, while a low score shows superior performance.

Grade averages in almost any school system are an imprecise measure of academic performance, because GPA, as an end-product of the student's attempt to cope with the school environment, is a function of both his true academic performance and his social adjustment to the school situation. Teachers who perceive a child in a positive manner tend to be predisposed to award him a higher mark than he would receive if his social behavior was less desirable.

In the IRGOP project, this situation was further confused by the school policy of placing each student into one of three academic streams depending primarily upon his intelligence quotient. This policy was a problem because it essentially assigned the subjects to three different academic atmospheres. In addition, GPA in each of these streams theoretically could be normally distributed. The following discussion explains how the problem of streaming was overcome as the system of academic classification became more sophisticated.

The Lorge-Thorndike Inventory and the Iowa Basic Skills Test were the two measures used to determine academic potential ("I.Q."). A small number (approximately 5%) of the students had taken different tests of potential, but these scores were converted to Lorge-Thorndike or Iowa Basic units. Scores from both the Iowa test and the Lorge-Thorndike scale were available for approximately 90% of the students.

When scores from both tests were listed, the higher score was used as the index of potential. This decision was based on the consideration that the academic potential measures may well be an underestimate of a student's true potential. The academic potential score derived from any standard test is a

function of a person's true ability, environmental factors, and test-taking ability. Most probably, the latter two factors are highly related: a child from a deprived background will most probably be disabled in the area of test-taking, while the converse would be true for his middle-class counterpart.

These latter factors may mask or depress a child's true ability, therefore, the higher of the two potential scores (when both were available) was always used as the measure of potential, even though statistical measures indicated that scores from either of them could serve about equally well. The Iowa Basic Skills scores were used for this purpose in only about 15% of the cases, while the Lorge-Thorndike scale was used in about 80% of the cases. Among the students studied, academic potential scores ranged from 75 to 149, with an average of standard deviation of 17.11.

It should be noted that should a child's real potential be higher than his test scores indicate, he would be classified as achieving even though he is not working up to his real potential. However this kind of error is preferable than its obverse.

The Measurement of Academic Achievement

Early in the pre-test phase of the project, academic success was defined as the relationship of academic performance to academic potential. This definition was first operationalized in a "crude gain" analysis of academic potential and academic performance data. Each student had his GPA and potential

score placed in one of ten deciles.[1] Academic achievement was derived by comparing the decile of each child's potential score with the decile of his GPA. On the basis of this comparison, each subject was considered to be either an academic achiever or underachiever if, respectively, his GPA decile was equal to or higher than his potential decile, or his GPA decile was two or more deciles below his potential decile.

The main advantage of this system was that the Ithaca School District had established guidelines for placing GPA into deciles, and it was relatively easy for the author to compute deciles for potential test scores, based upon the total Ithaca sample.

One drawback to the system was that it tended to severely restrict (more so than subsequent systems) the achievement potential of individuals in extreme categories. Individuals who were very high or low in GPA could only go, respectively down or up in achievement status. Individuals in the top tenth decile were "bunched" together in that decile and could only go down in status, while their low GPA counterparts were lumped together in the lowest decile and could only rise in status.

The problem with the first procedure for establishing success categories was alleviated to a great extent by converting both academic potential and

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1 A decile is a transformation score which is derived when a number is changed to an equivalent number by means of some kind of formula, a common example is when a number is changed to a percentage.

A decile score is one of the percentile transformations, a number that explains what percent of the other scores in a set of scores are below the given score. For example, if an I. Q. of 100 is equal to a percentile score of 50, this means that 50% of the individuals in the distribution have I. Q. scores less than 100.

A decile score is equal to ten percentiles. Thus, if a person's test score is in the sixth decile, approximately 60% of the rest of the scores of the people who took the test are below him.

academic performance scores to standard scores (or Z-scores). A Z-score is another type of transformation score, which indicates how many standard deviation units a particular score is from the average score in a group of scores. The formula for this transformation is:

$$\text{z-score} = \frac{\text{Particular score - Average}}{\text{Standard deviation}}$$

By using z-scores, a better comparison of academic performance vis-a-vis academic potential can be made. Although this procedure still restricted people who were at the very most extremes on these scores, it did not restrict many of the students who would have been classified with the very most extreme cases under the decile system.

However, the basic procedure, which had been used in the decile-comparison system, was still used to classify subjects. Once again, performance scores were compared to potential scores in a crude gain framework. The potential test Z-score was subtracted from the GPA Z-score: if the result was positive, the student was categorized as an achiever, but if the result was negative, he was classified as an underachiever.

Upon evaluation of this crude-gain Z-score system, it was found that by subtracting the potential from the performance score, the tacit assumption was made that there was a perfect relationship between potential and performance which meant, in effect, that by using the crude gain process, it is assumed that high I. Q. always went with high GPA and low I. Q. always went with low GPA. This assumption was unjustified. A better system, one which would come closer to "real life," would have to take account of the "actual" (i.e., statistical) relation between academic potential and measured performance.

The residual gain procedure takes into account the statistical association between potential and performance, and it therefore precludes the error of

assuming a perfect relationship between measured potential and measured performance. By using the Z-scores for academic potential and performance and by recognizing the statistical association (correlation) between performance and potential scores, the residual gain score reflects how much a person's academic performance score deviates from what is expected based on our knowledge of academic potential. The residual gain formula may be stated as:

$$\text{Residual gain} = Z_2 - r_1\ 2z_1$$

In the IRGOP project, z_1 is the standard score of the academic potential test, z_2 is the standard score of the academic performance measure, and r_1 is the correlation between the two measures. The residual gain (or loss) score is, therefore, as the name implies, the deviation of actual academic performance scores from estimated performance scores which were predicted on the basis of academic potential scores.

Besides being a more realistic approach to the assessment of academic achievement, Manning and Dubois (1962) have shown that the residual gain method is more reliable than the crude gain method. They also cite research in which the crude gain system has been severely criticized, especially in studies of learning.

Even with this more suitable classification system, the problem of school policy required decisions concerning whether or not the academic potential and academic performance z-scores should be based upon the data derived from all the students grouped together, or if scores should be computed for <u>each</u> of the three academic streams into which students were classified.

The "high" stream was composed of subjects whose I. Q. score was 120 or higher, the "middle" stream was composed of subjects whose I. Q. ranged between approximately 100 and 119, and the "low" stream was composed of subjects whose I. Q. ranged from approximately 75 to 99.

The correlations found between scores of academic potential and academic performance for the high, middle, and low streams were, respectively, .53, .40, and .10. When all the subjects were placed together without regard to stream, the correlation between potential and performance scores was .48.

It was felt that academic achievement was evenly distributed and that any system of classification should place approximately 50% of the students into the categories of achieving and underachieving. This meant that the residual gain system should place half of the subjects into each of the classifications. By using information based upon all of the subjects and information based on intra-stream data, it was found that both systems yielded approximately 50% achievers and 50% underachievers and that over 90% of the individuals who were classified in one category by one system were also placed in the same category by the other procedure. Thus, the residual gain system based upon data derived from the entire sample was just as effective as the system based upon intra-stream data. Since it was simpler to use data based upon all subjects, it was decided to disregard stream when classifying subjects.

In actual use of the residual gain system, all subjects, of course, who received positive scores were classified as achievers and all subjects who obtained negative scores were placed in the underachiever category. In the former category, the positive score indicated that subject's performance was better than would be expected from his academic potential score, while in the latter category, the negative score indicated that the subject was doing less than would be expected on the basis of his measure of potential.

Numerous studies of youth who have left school have shown that poor academic performance has often been associated with proneness to drop out of school. A dropout proneness scale was included in the IRGOP questionnaire

used for interviewing teenagers. This measure included 17 questions from a scale developed by Smith (1967), who adapted them from work done by Mink (1966). Answers to these 17 items showed great differences between high school dropouts and non-dropouts. Working in Appalachia, Smith wanted to develop a scale which students could administer to themselves. He felt that such a questionnaire was needed to substitute for dropout scales (such as the one Mink had developed) which required administration by a school counselor.

In the IRGOP project, scores for the 17 dropout items were added together to serve as a measure of dropout proneness, and this total score showed large differences between students who have been classified as achieving and under-achieving. This implied that the residual gain process was a fairly good measure of academic achievement.

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PERCEPTIONS OF MATERNAL BEHAVIOR AND IDEALS RELATED TO ACADEMIC ACHIEVEMENT IN FATHERLESS ADOLESCENT GIRLS

By Rose Ann Negele

Introduction

The purpose of the study is to examine interpersonal factors believed to be relevant to the development of academic achievement behavior in fatherless adolescent girls. Very little attention has been paid by researchers to the effect of father-absence on daughters. The educational and vocational statistics about women compound the seriousness of this deficient understanding of achievement motivation and behavior.[1]

The differential achievement behavior exhibited prior to young adulthood does not predict the final achievement status of women. Girls generally achieve higher grades in school than boys up to the college years, particularly in the early and middle school years. In high-school-age students there arises a consistent reversal in specific achievement areas, with boys forging ahead in mathematical subjects and quantitative reasoning. On Scholastic Aptitude Tests boys score as much as 50 points higher on the mathematical section of the test, while girls score only 8 to 10 points higher on the verbal section. It would seem, then, that adolescent years may be crucial for a girl's ultimate achievement behavior. The period may be a transitional one in which she makes the, not necessarily conscious, decision either to continue her achievement strivings or to push them aside for more traditionally feminine goals.

A brief review of the literature on the relationship between parental behavior and various aspects of children's achievement (see references) leads one to the expectation that perception of mother as being warmly democratic would be positively related to academic achievement in fatherless adolescent girls. More specifically, it would seem that maternal support and expectations

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[1] Fewer women than men enroll in college and even fewer graduate. Merely 1 in 3 of the Bachelor's and Masters degrees and 1 in 10 of the PhD degrees are earned by women. Although there are 24 million employed women and approximately 1/3 of the nation's married women work, the types of jobs they hold and the salaries they receive are limited, as indicated by a median income for women of $3,500 in comparison with $5,900 for men employed on a full-time basis. (Peterson, 1964)

for activeness, including independent behavior, would be positively related but that maternal punishment, control, achievement pressure, and mother-daughter conflict would be negatively related to adolescent girls' achievement. Consequently, six hypotheses were formulated:

1) Amount of perceived maternal support is positively related to academic achievement.

2) Perception of mother's ideal daughter as being active rather than passive is positively related to academic achievement.

3) Amount of perceived maternal punishment is negatively related to academic achievement.

4) Amount of perceived maternal control is negatively related to academic achievement.

5) Amount of perceived maternal achievement pressure is negatively related to academic achievement.

6) Amount of perceived conflict with mother is negatively related to academic achievement.

Because little systematic attention has been paid to sex differences in the configuration of parental factors associated with achievement, it is difficult to predict whether or not the findings reviewed would be replicable on both sexes. Therefore, the final hypothesis, stated in null form, is as follows:

7) There are no sex differences in the relationships of academic achievement to perceived maternal support, to perception of mother's ideal child as being active rather than passive, to amounts of perceived maternal punishment, control, and achievement pressure, and to amount of perceived conflict with mother.

Procedures

Subjects

Subjects were 106 adolescent girls and 90 adolescent boys, aged 12 to 19, from 98 father-absent families. The sample, a pilot study, represented virtually the whole population of father-absent families with two or more adolescent children in Tompkins County, New York, which consists of the city of Ithaca (population about 45,000) and the surrounding rural area.

Eighty-nine girls were white and 17 were Negro; 75 boys were white, the remaining 15 being Negro. Thus the ratio of whites to Negroes was not significantly different in the female and male sub-samples. Means for age, school grade level, and education of father and mother for girls and boys also were not statistically different.

Data from which the measure of academic achievement was derived were obtained from school records. Perceptions of maternal behavior and ideals were obtained by means of a precoded questionnaire.

Variables and Measures

Amount of perceived conflict with mother was measured by the sum of ratings of frequency of conflict on 14 items such as, "the kids I run around with," "the places I go when I go out," "keeping my room clean and straight," "the way I treat one or more of my brothers and sisters," "how I spend my money." This scale of conflict was developed especially for use in the larger research project. No measures of reliability or validity were obtained, but the instrument may be accorded face validity on the basis that the items are straight forward and were apparently easily understood by the respondents.[2]

Perceptions of maternal support, punishment, control, and achievement pressure were derived from an adaption of the proposed short form of the Cornell Parent Behavior Description, developed by Bronfenbrenner, et al., (Rogers, 1966), which is in the form of rating scales. The instrument was designed to reveal antecedents and consequences of children's perceptions of parental behavior toward them. The sum of three relevant items was used as a measure of each of the four variables. Examples of the items included are, respectively: "She makes me feel she is there if I need .er," "She slaps me," "She is very strict toward me if I don't do what's expected of me," and "She keeps after me to do well in school."

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[2]The items cover the areas of conflict mentioned by adolescents in answer to an open-ended question in a study by Douvan and Adelson (1966).

The measure of perceived mother's ideal daughter is a modification of an instrument designed by Waring (1948), Feldman (1957). It is composed of six pairs of contrasting descriptive statements and was originally used to determine the kind of preschool child parents desired. In 1963, Borgman found that the six categories of the preferred type of child tended to characterize children as active or passive. A slight modification of this version was used. Each statement in the six pairs of contrasting statements was designated as active or passive by four graduate students in the Department of Human Development and Family Studies, and there was unanimous agreement on each item. The six pairs of items on this active-passive dimension relate to the mother's ideal daughter with respect to degree of sociability, intellectual curiosity, emotional expressiveness, competitiveness, independence of adult authority, and nonconformity with peers. It was assumed that the greater the value mother was perceived to place on these characteristics, the greater the activeness she desired in her daughter.

Academic achievement is defined in this study as the relationships between performance and potential. Academic performance was measured by subject's cumulative grade-point average (GPA) for two previous school years. Numerical values were assigned to grades for each school subject (with the exception of physical education) and GPA was determined by obtaining the arithmetic mean of grades for each. GPA ranged from 1 (indicating poor performance) to 5 (indicating superior performance). The means, 2.4 for girls and 2.8 for boys, were not significantly different.

Academic potential was indexed by the Lorge-Thorndike Inventory or the Iowa Basic Skills Test. About 5% of the subjects had taken different tests, but these scores were transformed to Lorge-Thorndike or Iowa Basic units. For approximately 90% of the subjects, scores from both the Iowa and the Lorge-Thorndike Tests were available. Where a choice was possible, the higher score was used. The product-moment correlation of .86 between the two tests indicated that either could have served as a measure of academic potential. The scores

ranged from 74 to 149; means for girls and boys were each 110.

The measure of academic achievement is based on the "residual gain procedure," which takes into account the correlation between ability (or potential) and GPA (or performance) in the subject population. Precluded is the common error of assuming a perfect relationship between measured potential and measured performance. The relationship between the two is described in a regression equation. Positive or negative deviations of actual academic performance scores from predicted academic performances scores from the regression are used to measure variable academic achievement. The mean deviation score for girls was +.18, for boys it was +.20; these means were not significantly different.

Results

To test the hypotheses concerning fatherless adolescent girls, product-moment coefficients of correlation were calculated. Separate analyses were made for the economic dependency group and for the group of remaining girls. Because differences between the two groups were not significant, only the results obtained for the combined sample will be reported upon. This will be followed by a report on results pertaining to the hypothesis of no sex differences.

Hypothesis 1: No evidence was obtained for the hypothesis that amount of perceived maternal support is positively related to academic achievement, but when the three items comprising the measure of support were individually correlated with the achievement variable, it was found that the correlation coefficient of academic achievement with the item "She teaches me things I want to learn" (referred to by Bronfenbrenner as "instrumental companionship") was +.14 (p=10).

Hypothesis 2: Perception of mother's ideal daughter as being active rather than passive is positively related to academic achievement. Although the over-all measure of activeness was not significantly correlated with

academic achievement, two of the six individual items showed significant positive correlations with the achievement variables, and another yielded a noteworthy negative correlation. Correlations for items that relate independence of adult authority and intellectual curiosity with academic achievement were +.18 (p=.05) and +.33 (p=.001), respectively. The correlation coefficient that resulted between the item referring to competiveness and academic achievement was -.19 (p=.05).

Hypothesis 3: Amount of perceived maternal punishment is negatively related to academic achievement. This hypothesis was supported by the significant correlation of -.26 (p=.991) between the maternal punishment variable and academic achievement.

Hypothesis 4: Amount of perceived maternal control is negatively related to academic achievement as indicated by the correlation coefficient of -.14 (p=.10)

Hypothesis 5: The amount of perceived maternal achievement pressure is negatively related to academic achievement. A significant correlation of -.38 (at p=.001) resulted in support of this hypothesis.

CORRELATIONS OF MATERNAL BEHAVIOR AND IDEALS WITH ACADEMIC ACHIEVEMENT

Table 1

Variable Correlated with Academic Achievement	Girls[1] (N=106)	Boys[1] (N=90)	Sex Differences[2]
Maternal support	+.10	+.34***	.24*
Activeness of mother's ideal daughter	+.10	+.03	.07
Maternal punishment	-.26**	-.02	.24*
Maternal control	-.14	+.02	.16
Maternal achievement pressure	-.38***	-.25**	.13
Mother-daughter conflict	-.14*	-.29**	.15

[1] 1-tailed test

[2] 2-tailed test

* p=.10
** p=.05
*** p=.001

Hypothesis 6: Amount of perceived conflict with mother is negatively related to academic achievement as evidenced from the correlation coefficient of -.14 (p=.10) between the general measure of conflict and academic achievement. (See Table 1 for a summary of the correlations).

Hypothesis 7: There are no sex differences in the perception of mother's ideal child as being active, amounts of perceived maternal control, achievement pressure, and perceived conflict with mother. As noted in the table, two of the six tests showed sex differences significant at p=.10: relationship of academic achievement with perceiving maternal support and perceiving maternal punishment.

Discussion

Six hypotheses relating perceptions of the mother as being warmly democratic to academic achievement in fatherless adolescent girls were tested on a sample of 106 girls, aged 12 to 19, from father-absent families in a small metropolitan area of upstate New York. In addition, correlation comparisons were made for a group of 90 fatherless adolescent boys from the same area. The following findings emerged.

1) Amounts of perceived maternal punishment, achievement pressure, and conflict were negatively correlated with academic achievement for fatherless adolescent girls. Only the first two were significant at a satisfactory statistical level.
2) General measures of perceived maternal support and perceived activeness of mother's ideal daughter were not significantly correlated with academic achievement.
3) No significant sex differences were found in correlations of academic achievement with activeness of perceived mother's ideal child, amounts of perceived maternal control, achievement pressure, and amount of perceived conflict with mother. Sex differences in correlations of academic achievement with perceived maternal support and punishment

were significant at the .10 level, although these results may have occurred by chance.

The findings in this study, however limited, suggest that maternal behavior and ideals of a warmly democratic nature are generally conducive to academic achievement in adolescent girls. Specifically, expectations for independence and intellectual curiosity may facilitate academic achievement, whereas maternal punishment, control, achievement pressure, and mother-daughter conflict probably impede achievement behavior. Negative maternal behaviors may so restrict a girl's experiences that she never has sufficient opportunities to develop achievement skills or to experience satisfactions in independent accomplishments. Also, the emotional tensions resulting from negative mother-daughter interactions may inhibit the girl from becoming involved with her environment. Negative maternal behavior may also encourage daughter to believe that factors outside her control cause success or failure. Thus, threatening interactions with mother may result in strong feelings of inferiority that would discourage daughter from even attempting challenges.

Because ambiguity surrounds our knowledge of sex differences in the effects of similar parental behaviors, the result of no significant sex differences in the relationship of academic achievement to most maternal variables of interest in this study is only suggestive. The finding may be interpreted to mean that contrary to the common assumption that father-absence has a more drastic impact on boys, there is no difference in its effect on the achievement behavior of adolescent girls or boys. The suggestion is only speculative; further research is essential in this neglected area of human development.

The significant correlations obtained in this study are small, indicating that only from 3 to 14 per cent of the variance in academic achievement is explained by the specific variable. But if it is assumed that behavior is the complex product of many influences, then it would be impossible to obtain high

correlations between achievement and single-dimensional maternal behavior. Thus, development of a more comprehensive measure of maternal influences on adolescent's academic achievement behavior, and the use of multiple correlation techniques would be necessary in future research.

Implications

These findings clearly suggest that there is a strong link between the home environment and school achievement. Mothers can play an important role in encouraging or discouraging academic growth in their children. Specifically, mothers who encourage independence and intellectual curiosity, i.e., activeness, on the part of their daughters may facilitate academic achievement. Conversely the feelings of tension, inferiority, and resentment that may result from negative interactions with the mother may leave a daughter quite depleted and unable to advance academically. This may be true of sons as well, however it would appear that punishment does not seem to be as detrimental to them as it is to their sisters. It is clear that of the six items that referred to maternal behavior, four of these were significantly correlated with academic achievement, indicating that indeed there is a strong maternal effect on fatherless daughters during the formative adolescent years.

In general, supportiveness from the mother is not necessarily related to academic growth in daughters although it does seem more necessary for sons. It would seem however that there are positive results when a mother tunes in and tries to fulfill relevant needs by trying to teach her daughter things she has stated she wants to learn.

Educators and researchers might be particularly interested in pursuing further the interesting finding of little difference between boys and girls in the relationship of academic achievement to most of the maternal behavior variables. Contrary to popular theory father absence may have as great an effect on girls as it does upon boys.

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Housing Satisfaction, Self-Concept and Teenage School Achievement

By Phil Lewin

Introduction

In the last twenty years a great deal of attention has been paid to the housing of the poor and of minorities in America. Sociologists, government officials and the public have expressed great concern about the problems of housing and poverty. This has resulted in investigations, programs of action, and a great deal of spending of public and private funds in order to solve housing and slum problems. At the same time, educators, psychologists and others have been devoting much effort to the problems of learning and of self-concept. Only on rare occasions have investigations been made which test interrelationships between these three areas of study. However, there is evidence to believe that self-concept has a very vital effect on school achievement, and that because housing, or more specifically perception of housing, is so much a part of self concept, it too has significant effects on the achievement of the individual. It appears that the individual's phenomenological field, including home and self-concept factors, may permit or restrict upward social mobility.

In 1962 it was estimated that there were 9.5 million dwelling units in the United States (out of a total of 58 million) which were seriously deficient.[1] The families living in these houses lack the social and educational opportunities afforded to the rest of the society. There is evidence that living in poor housing has its effect on self-evaluation and motivation. It is clear that poverty is associated with a multiplicity of ills which include rural and urban slum living, a depressing anomic existence, and a lack of education.

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1. Report of the Conference on Economic Progress, Poverty and Deprivation in the United States. Washington, D.C., April 1962, pp. 1-66, in Glenn H. Beyer, Housing and Society (New York: The Macmillan Company, 1965), p. 73.

The purpose of the present study was to investigate the relationships between the self-concept of the individual, his perception of his housing and his school achievement. Since the subjects in this study were siblings, there was a control for home environment, which is not possible in most investigations. The study also compared perceptions of housing and self-concept and their effects on achievement across two socio-economic levels. Thus, the study may help determine some factors which help poor youngsters to succeeed, and also some factors which cause more affluent youngsters to fail.

Since school and economic success in Americaare the result of complex forces it is important to supply information which may help educational and government leaders, as well as parents, make decisions based on all available evidence. Parents and teachers need to know more about the interaction of self-concept and achievement. School officials need more information about the proper "mix" of peer and adult influences which affect achievement. In addition, decisions about expenditures on new public and private housing require more than just the feeling that all "new" housing is good, and that all "old" housing is bad.

Another aspect of the study is that external criteria were not set up as standards for satisfactory housing. Rather, it was the feeling of satisfaction or dissatisfaction of the individual which was probed. The bias of an observer is not involved. In other words, if housing is a factor in the achievement of teenagers, it is their perception of housing which counts. Following the same line of reasoning, it was the teenagers' perception of self which was examined, not the reports of teachers or others. Since motivation, learning and achievement are the result of what happens within the individual, it is crucial that the feelings of the individual be investigated.

Most housing studies have dealt with the health and social interaction of the subjects involved. Generally, slum housing has been compared with new adjacent

public housing, rather than with housing differentially viewed by the subjects involved. It is true that inadequate housing is only one of the many factors which sustain the poverty cycle. In fact, writers have stressed the idea that social surroundings affect success much more than physical surroundings. They stress the special effect of the child-rearing practices and family life-styles of the poor on the development of children.[2] However, it would seem unwise to neglect the effect that a physical environment, which includes severe crowding, inadequate kitchen and sanitary facilities, filth, dilapidation and segregation would have on growing children, and on their families. Many investigators support the idea that although good housing does not guarantee sucess in school and in life, bad housing seems to contribute to poor child-rearing practices and to delinquency.[3]

Procedures

Data were gathered from 196 one-parent teenagers from Tompkins County, an upstate New York county. Most of the subjects were residents of the Ithaca School District. Eighty-six received welfare aid and 110 did not. The subjects were paired as the higher and lower achievers within each family.

A precoded instrument containing 42 questions on perception of housing and six self-concept questions was used by trained graduate and undergraduate interviewers. School officials supplied data all the academic information needed for all the subjects.

Methods

A rotated factor analysis of the housing item responses provided four housing satisfaction factors. They were:

1. The house is in good condition.
2. Space and privacy are not a problem.
3. There is no problem doing homework at home.
4. The location is convenient, the neighborhood is satisfactory, and no change is desired.

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2. Catherine S. Chilman. Growing Up Poor (Washington, D.C.: U.S. Government Printing Office, U.S. Dept. of Health, Education, and Welfare, Welfare Admin., Div. of Research, 1966).

3. Charles Silberman. "The City and the Negro" Fortune, March 1962, p. 152.

The four housing factors were used with the self-concept variables, social (willingness to mingle), expressive (ability to express feelings), competitive, peer independence, adult independence, and intellectual curiosity in a correlation and multiple regression analysis with school achievement as the dependent variable. The two types of variables, housing and self-concept, were used together in computations, as well as separately.

Results

For the welfare subjects, a correlation of +.30, significant at the .01 level, was computed between housing factor 4 (Neighborhood satisfactory) and achievement. The multiple coefficient of correlation for all variables was .50 (Table 1).

TABLE I

SIGNIFICANT CORRELATION COEFFICIENTS
WELFARE AND NONWELFARE SUBJECTS
ACHIEVEMENT AND HOUSING FACTORS
(COMPUTED WITH SELF-CONCEPT VARIABLES)

Group	R	H.F. 1 Condition	H.F. 2 Space and Privacy	H.F. 3 Homework Center	H.F. 4 Neighborhood Satisfactory
Welfare	.50				+.30**
Nonwelfare	.44				

** Significant at .01 level

R = Multiple coefficient of correlation for all variables involved.

The regression which was computed for welfare higher achievers (Table 2) had an F value of 2.84, significant at the .05 level. Housing factor 3 (Homework center) made a significant contribution to the regression. The regression coefficient was +19.59 with a t value of 2.17 which was significant at the .05 level. The regression computation for welfare lower achievers did not provide a significant F value.

TABLE 2

MULTIPLE LINEAR REGRESSION
ACHIEVEMENT AND HOUSING FACTORS
WELFARE HIGHER ACHIEVERS

Group	Housing Factor	Significant Regression Coefficients	Error Terms	t Value	Level of Significance
Welfare Higher Achievers	Home-work center (H.F. 3)	+19.59	9.02	2.17	.05

For the non-welfare subjects there were no significant correlations of achievement and housing factors. However, the greater sensitivity of the regression computations did provide two specific significant regression coefficients for housing factor 3 (Homework center). The F values of the regressions were significant at the .05 and .01 levels respectively. For the nonwelfare higher achievers the regression coefficient was +24.79 with a t value of 2.16 which was significant at the .05 level (Table 3). For the non-welfare lower achievers the regression coefficient was +44.21 with a t value of 4.09 which was significant at the .01 level. (Table 4).

TABLE 3

MULTIPLE LINEAR REGRESSION
ACHIEVEMENT AND HOUSING FACTORS
NONWELFARE HIGHER ACHIEVERS

Group	Housing Factor	Significant Regression Coefficients	Error Terms	t Value	Level of Significance
Nonwelfare Higher Achievers	Home-work center (H.F. 3)	+24.79	11.49	2.16	.05

TABLE 4

MULTIPLE LINEAR REGRESSION
ACHIEVEMENT AND HOUSING FACTORS
NONWELFARE LOWER ACHIEVERS

Group	Housing Factor	Significance Regression Coefficients	Error Terms	t Value	Level of Significance
Nonwelfare Lower Achievers	Home-work center (H.F. 3)	+44.21	10.81	4.09	.01

Thus, for both welfare and nonwelfare groups, satisfaction was expressed with housing in terms of the appropriateness of the house as a place to do homework and satisfaction with the neighborhood. However, it should be noted that the regression computed for welfare higher achievers provided a relationship with housing and achievement significant at the .05 level. For welfare lower achievers the results were not significant. Thus, if teenagers report their satisfaction with the convenience of their neighborhoods, and their satisfaction with the lack of problems doing homework at home, successful school achievement can be predicted.

There were no significant correlations of self-concept variables and achievement. An examination of the F values for the regression computations reveals that self-concept variables alone do not supply any significant F values. However, the housing factors alone supply significant F values for three out of four groups. Table 5 highlights the importance of the perception of satisfaction with housing.

TABLE 5

F VALUES FOR REGRESSION COMPUTATIONS

Variables Involved	Groups	F Value	Sig.
Achievement and housing	Welfare higher achievers	2.84	5%
Achievement and housing	Welfare lower achievers	.49	N.S.
Achievement and housing	Nonwelfare higher achievers	3.41	5%
Achievement and housing	Nonwelfare lower achievers	4.49	1%
Achievement and self-concept	Welfare higher achievers	.60	N.S.
Achievement and self-concept	Welfare lower achievers	2.24	N.S.
Achievement and self-concept	Nonwelfare higher achievers	1.57	N.S.
Achievement and self-concept	Nonwelfare lower achievers	1.61	N.S.

For all subjects the regression computed for achievement, housing and self-concept provided a relationship between the self-concept variable, expressive and achievement significant at the .05 level (Table 6).

TABLE 6

MULTIPLE LINEAR REGRESSION
ACHIEVEMENT, HOUSING AND SELF-CONCEPT
ALL SUBJECTS

Variable	Reg. Coef.	Error Terms	t Value	t Sig.	Partial Corr. Coef.
Space and Privacy (H.F. 2)	-9.29	6.09	-1.52	N.S.	-0.11
Homework center (H.F. 3)	+25.19	6.04	+4.17	.01	+0.29
Neighborhood satisfactory (H.F. 4)	+8.12	6.02	+1.35	N.S.	+0.10
Expressive	+9.25	3.66	+2.53	.05	+0.18

F value = 3.42 (Significant at .01 level).
R^2 (Coefficient of Determination) = .16.

For welfare subjects in the regression computed for the same variables as mentioned above, again only the self-concept variable, expressive showed a significant relationship with achievement.

TABLE 7

MULTIPLE LINEAR REGRESSION
ACHIEVEMENT, HOUSING AND SELF-CONCEPT
WELFARE SUBJECTS

Variable	Reg. Coef.	Error Terms	t Value	t Sig.	Partial Corr. Coef.
Space and privacy (H.F. 2)	-12.65	8.57	-1.48	N.S.	-0.17
Homework Center (H.F. 3)	+14.44	8.06	+1.79	N.S.	+0.20
Neighborhood Satisfactory (H.F. 4)	+8.90	9.49	+0.94	N.S.	+0.11
Social	+9.56	5.61	+1.70	N.S.	+0.19
Expressive	+15.45	5.31	+2.91	1%	+0.32
Competitive	+5.75	6.44	+ .89	N.S.	+0.10
Peer independence	+8.48	6.40	+1.32	N.S.	+0.15
Intellectual Cur.	-15.09	7.98	-1.89	N.S.	-0.21

F Value = 2.48 (Significant at .05 level).

R^2 (Coefficient of Determination) = .25

Discussion

The implications requiring interpretation were derived from the data. One is the strength of the housing factors in their association with achievement. The second one is the omnipresence of the self-concept variable, expressiveness, and its association with achievement.

An interpretation of the data on housing satisfaction may be made on the bases that 1) housing and self-concept are closely related perceptions of teenagers,

and 2) housing is the base from which academic achievement is made possible. In addition, it may be easier ("safer") for teenagers to express themselves in terms of the tangible (e.g., housing) than the less tangible (less "safe" emotionally) self-concept factors.

One way of interpreting the importance of "expressive" in this study is by recalling the more "idea oriented" and highly verbal style of middle-class youngsters, in contrast to the style of lower-class youngsters who tend to be "thing oriented" and nonverbal. In regard to expressiveness the higher-achieving welfare teenagers on this study are comparable to middle class children. Another possible way of interpreting the value of expressiveness is that it serves as a cathartic release freeing youngsters' emotional energies so they may pursue their studies. It may be that American schools provide too little opportunity for expressiveness on the part of the teenager.

Implications

Housing Policy

The data strongly suggest the importance of the housing satisfaction of the teenagers as it relates to academic achievement; however, the standards are based on the perception of the teenagers, and not on what experts consider important. The convenience of the house to friends and shopping, the appropriateness of the house as a center for homework, and the absence of distractions while doing homework are the vital factors. If Americans are concerned with school achievement housing designs should make certain that these needs are met.

Child-Rearing and Educational Practices

As mentioned above, expressiveness stands out dramatically as a self-concept variable associated with school achievement. The recent turmoil in public schools and colleges points to the need for student expression within the academic situation.

American homes and schools too often are still places where children are seen but not heard. In fact, it would appear that not only should students be encouraged to express themselves but that courses should specifically be designed to provide them with the needed techniques to do so.

In conclusion, it may be said that parents, educators and the public in general can use information from this study not only to provide appropriate housing, which may act as the base for achievement, but also to provide the atmosphere at home, in school and in the community which will allow for the proper "mix' of expressiveness, competitiveness, "sociability," peer independence and intellectual curiosity. Curricula and teaching style, both formal and informal, should be altered to take these aspects of self-concept into account.

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